APRIL/MAY 2025

GECH34A/DECH34A – SCIENTIFIC RESEARCH METHODOLOGY

Time : Three hours Maximum : 75 marks

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SECTION A — (10 × 2 = 20 marks)

Answer ALL Questions.

1. What is meant by impact factor?
2. What are the objectives of the research?
3. Define crystallization.
4. What are the four types of corrosive materials used in the laboratory?
5. What makes data reliable in chemistry?
6. Define accuracy.
7. Define Q test.
8. What is the law of least squares analysis?
9. How to make the chapter format in research?
10. What is the purpose of quotation in research.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Classify citation techniques.

Or

(b) Discuss in detail how various search engines are used to do the literature survey.

12. (a) Give an account on Soxhlet extraction techniques.

Or

(b) Briefly explain the danger of working with the radioactive materials.

13. (a) Explain various types of errors and the ways to minimize them.

Or

(b) Briefly explain the normal distribution curve.

14. (a) What are significant figures? Explain how computations are done using significant figures.

Or

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(b) Five determinations of the vitamin C content of a citrus fruit drink gave the following results: 0.218, 0.219, 0.230, 0.215 and 0.220 mg/ml. Apply the Q-test to see if the 0.230 value can be discarded.

15. (a) Briefly explain about the revision and editing the dissertations.

Or

(b) Explain the usage and significance of the tables in the dissertation.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What are SCI indexed journals? Name three SCI indexed chemistry journals. How will you calculate h-index and i – 10 index.

17. Distinguish between the extraction and crystallization. Explain them with an example.

18. Discuss about the terms precision and accuracy and how are they measured.

19. Criticize "t" test, "F" test and "Q" test.

20. Elaborate on various components of dissertation writing and article writing.

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